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☞ *See Advertisement on last page.*

Take It Easy.

Take it easy! Life at longest
But a lengthened shadow is,
And the brave as well as strongest,
Dare not call to-morrow his.
Take it easy! *for to-day*
All your plans of wisdom lay.

Take it easy! done with fretting,
Meet your neighbor with a smile,
From the rising sun to setting
Live the *present* all the while!
Take it easy! every vow
Make in reference to *now*.

Take it easy! what is hidden,
Or is wrong, or seemeth so,
Leave it as a thing forbidden,
Out of which a curse may grow!
Take it easy! never pry
Into what will cause a sigh,

Take it easy! daily turning
To the monitor within,
On its altar always burning,
Keep an incense free from sin?
Take it easy; never fear
While you keep a conscience clear!

Take it easy! ever leaning
To the side of truth and right;
Happiness from virtue gleaning,
Peace of mind from wisdom bright!
Take it easy! for at best,
Life is but a sorry jest.

Song of the Laborers.

AIR :—'Sparkling and bright.'

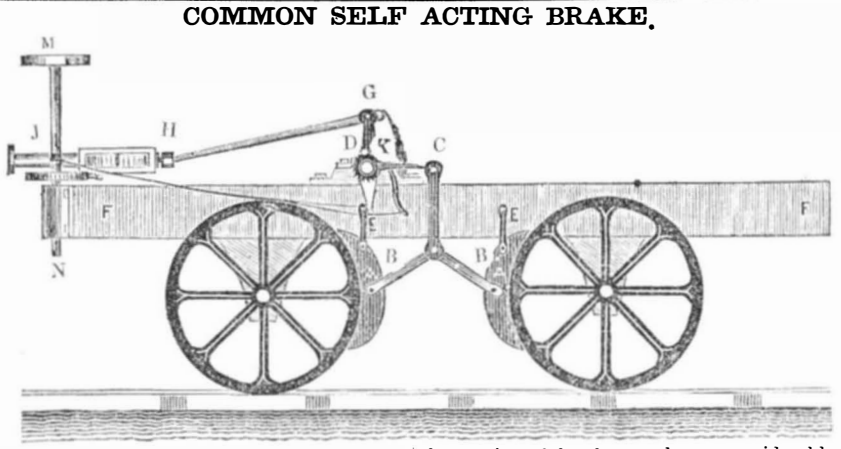
Holy and pure is the labor sure,
In the rugged path we're treading,
'Twill lead us on, till the race is won,
For 'tis ever upward leading.
Then never shrink, for 'tis bliss to think
That our cause is true and holy;
Let us persevere in our calling here,
Be our station e'r so lowly.

Labor is love, and our deeds shall prove
That we're moved by kindly feeling,
And Labor's light when the heart's aright,
For 'tis only health revealing.
By toiling hands the record stands,
Shall come both wealth and pleasure,
And the time will come when we find our home,
And may claim a fadeless treasure.

Clergymen Applying for Office.

Among the anecdotes told of adroitly turning off applicants for office, we know of few better thnn this of Gen. Jackson and the late Rev. Mr. Kinney, once Lieut. Governor of Illinois; Mr. Kinney had come to Washington to ask for an office. Admitted to an interview with the Chief Magistrate, the reverend applicant set forth his pretensions, in vivid colors; his services to the democratic ranks were all enumerated; and redoubled exertions for the future, in the same good cause, were promised.—When he had concluded, the venerated Chief, regarding him with a mild, but solemn air, said: 'Mr. Kinney, you are, I believe, a minister of the gospel: is it not so?' 'I am, your Excellency,' was the reply. 'Then, sir, rejoined the President, 'you already hold a higher office thau any I can give you; and if you fulfil its duties as you ought, you will have no leisure to attend to minor matters.'

COMMON SELF ACTING BRAKE.



EXPLANATION.—This engraving represents a section of an ordinary railroad truck, with the brake and its appendages connected.—The above must not be mistaken for a side-view elevation, but a sectional view of the inside of the truck, the beam F F, being the side beam, passing outside of the wheels. The two brake-blocks, A A, are supported by two short hanging rods, E E, which are connected by pivots to the side beam: the toggle levers, B B, are connected to the blocks by pivots, and are both together connected to the bottom of the toggle-post, C, and the head of this post is connected by a feather-spring to a horizontal ratchet shaft, D. From this shaft, a lever extends upwards to G, where it is connected to a connecting rod, G, H, and the rod is connected to the bumper, J, by an encased spiral spring, I. Thus it will be seen that when the bumber comes in forcible contact with that of another car, the concussion acting through the spiral spring, connecting rod, lever, shaft, feather-spring, post and toggles, forces the blocks against the wheels and retards their motion. A ratchet-dog or catch, K, takes to the teeth of the ratchet, against which it is pressed by a spring, (not represented) which prevents the turning of the shaft, unless a considerable force is applied: and this catch being mounted on a central pivot, and extending some distance below, a chain or wire extends from the bottom thereof to the vertical capstan, M N. In connection with this, is another wire, which is connected to the bottom of a lever which extends downward from the ratchet shaft; so that when the capstan is turned, the ratchet is first relieved from the catch, and then the descending lever is by the same motion drawn forward, whereby the brake-blocks are forced against the wheels. Thus it will be seen that the brakes may be applied either by hand, by means of the capstan, or by the concussion of the bumper. A horizontal ratchet is attached to the capstan immediately above the floor of the car; and a foot-dog or catch, being attached by a pivot to the floor, takes occasionally to this ratchet to prevent its returning till relieved from the dog, which is done by the foot of the brakeman.

This excellent plan of arrangement was invented by Mr. William M. Cammon, of Albany, who has taken measures for securing a patent therefor.

Lake Superior—British Side.

A letter from Sault St. Marie, (British side,) to the Montreal Herald, dated August 14th, gives some interesting particulars of the progress of Mining, Explorations, and other industrial enterprises on the North shore of Lake Superior. He says:

'It is now ascertained, beyond a doubt, that the north shore of Lake Superior is as rich, if not richer, than the south, in copper and silver ores. The explorations that are now going on, are bringing to light some of the richest veins of these minerals, that have been found on the shores of this wonderful lake.

'I have been shown some magnificent specimens both of native copper, and of the best. of all ores, the gray sulphuret; and I am assured by those who have visited the mineral regions, and on whose statements I can rely, that there is 'any quantity' of mineral there. I hear of four companies that have been on the ground this season, exploring and making locations, and I am glad to learn that these companies are composed of men of wealth and influence, and engage in the business of mining as a safe and profitable way for the investment of capital, and not, like many of the American Companies, merely for purpose of speculation.'

Barnum's Safety Apparatus.

There appears to be much enquiry of late, for Barnum's invention for preventing explosions of steam engine boilers. This invention was patented about four years ago, and consists in an arrangement of levers and buoys inside of the boiler, and so connected with a small steam-pipe valve, as to set a pump in motion whenever the water in the boiler becomes too low. We published a description of the apparatus with an engraving, about four years since, and may repeat the description for the benefit and safety of the public.

Life in New England.

An intelligent gentleman who has been travelling extensively during the last summer in New England, speaks to us, says the Richmond Republican, in raptures of the wonderful enterprise and energy of the people. Not only in manufactures, said he, but in every branch of trade, and especially in agriculture, they have exhibited a wonderful improvement. Their uninviting soil, which would here be given up as past redemption, has been transformed into a garden. They are a *great agricultural people.* Their rough roads, too, have been made as smooth as a bowling ally. Through every part of the country the tide of life rolls with ceaseless activity. When you are on the railroads, said our informant, you meet with such a multitude that all the population seems travelling. When you leave the cars, and get upon the cross roads, visit the farms, or look into the shops, the whole population seems at work, and hard work, too, with their coats off, and "fourteen hours a day" toiling for their bread. Can Polk's free trade crush such people?

Philosophy of Gravity.

A body carried below the surface of the earth becomes lighter, because the matter then above it, is drawing it up, intsead of down, as before. A descent of a few hundred feet makes a sensible difference, and at the centre of the earth, if a man could reach it, he would find things have no weight at all; and there would be neither up nor down, because bodies would be equally attracted in all directions.

Southern Magnetic Telegraph.

The line it is said, will be extended to New Orleans, via. the Mississippi and Ohio rivers. It commences at Philadelphia, thence to Harrisburg, Pittsburgh, Wheeling, Cincinnati, Louisville, Saint Louis, Nashville, Memphis, Vicksburg, Natchez, to New Orleans.

A LIST OF PATENTS

Issued from the 2d of July to the 20th of July, 1846, inclusive.

To George M. Norton, of Rochester, N. Y., for improvement in Cooking Stoves. Patented 2d July, 1846.

To William Germar, of Easton, Pa., for improvement in Tanning. Patented 2d July, 1846.

To Joseph G. and Jonas H. Kendall, of Leominster, Mass., for improvement in Bleaching Paper pulp. Patented 2d July, 1846.

To John Davidson, of Baltimore, Md., for improvement in Lamps. Patented 2d July, 1846.

To John Simpson, of Decatur, Geo., for improvement in Band Pulleys. Patented 2d July, 1846.

To Chapman Warner, of Louisville, Ky., for improvement in Pumps for Raising Water. Patented 7th July, 1846.

To Lauriston R. Livingston, John J. Roggen and Calvin Adams, of Pittsburgh, Pa., for improvement in Shanks of Door Knobs. Patented 7th July, 1846.

To T. F. Strong, a citizen of the United States, in London, England, for improvement in Lamps. Patented 7th July, 1846.

To John Barker, of Baltimore, Md., for improvement in Air Heating Furnaces. Patented 7th July, 1846.

To Jonathan Russell, of Philadelphia, Pa., for improvement in Boot Trees. Patented 7th July, 1846.

To William H. Stevens, of Salem, Ill., for improvement in Grain Cleaners. Patented 7th July, 1846.

To Ezra L. Miller, of Brooklyn, N. Y., for improvement in Hot Water Apparatus for Warming Buildings. Patented 7th July, 1846.

To Ezra L. Miller, of Brooklyn, N. Y., for improvement in Boiler Furnace. Patented 7th July, 1846.

To William Ballard, of New York city, for improvement in Jack Screw. Patented 7th July, 1846.

To Dan Pease, jr., of Floyd, N. Y., for improvement in Machines for Cleaning Buckwheat. Patented 14th July, 1846.

To William March, of Sand Bank, N. Y., for improvement in Water Wheels. Patented 14th July, 1846.

To W. E. Woodbridge, of New York city for improvement in Locks for Doors, &c Patented 14th July, 1846.

To William S. Burch, of Washington, D. C., for improvement in Chimney Caps. Patented 14th July, 1846.

To Benjamin M. Van Der Veer, of Clyde, N. Y., for improvement in Teaching Arithmetic. Patented 14th July, 1846.

To Samuel Lichtenthæler, of Litiz, Pa.. for improvement in Window-Bind Fastenings, &c. Patented 14th July, 1846.

To Jedediah Holcomb, of Brandon, Vt., for improvement in Nail Machinery. Patented 14th July, 1846.

To David M. Smith, of Springfield, Vt., for improvements in Locks for Doors, &c. Patented 14th July, 1846.

To Jesse Fitzgerald, of New York city, for improvement in Thrashing Machines. Patented 14th July, 1846.

To Eleazer D. Loveland, of New York city, for improvement in Hot Air Stoves. Patented 14th July, 1846.

To John McCully, of Salem, Mass., for improvement in Spinning Hemp. Patented 14th July, 1846.

To Theodore F. Strong, of New York city, for improvement in Lamps. Patented 20th July, 1846.

To John L. Whetstone, of Cincinnati, Ohio, for improvement in Door Locks. Patented 20th July, 1846.

To Jacob Shaw, Hinkley, Ohio, for improvement in Door Springs. Patented 20th July, 1846.

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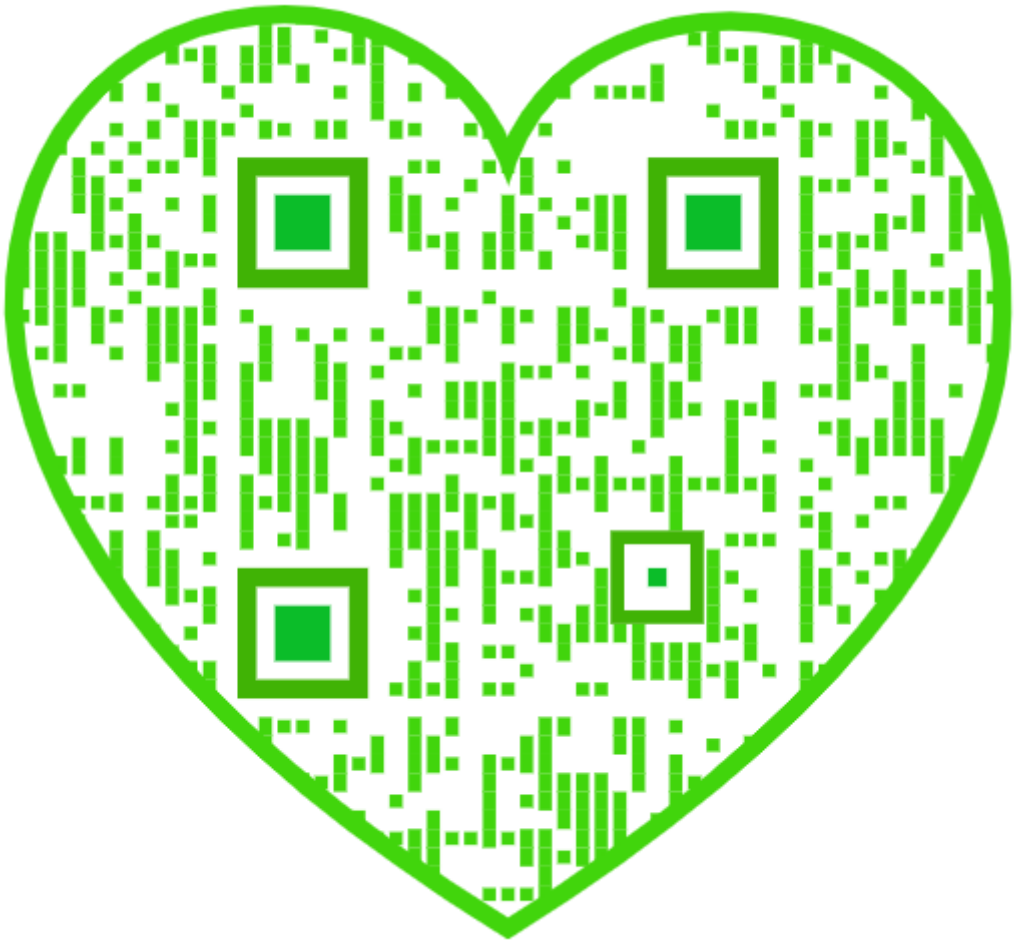

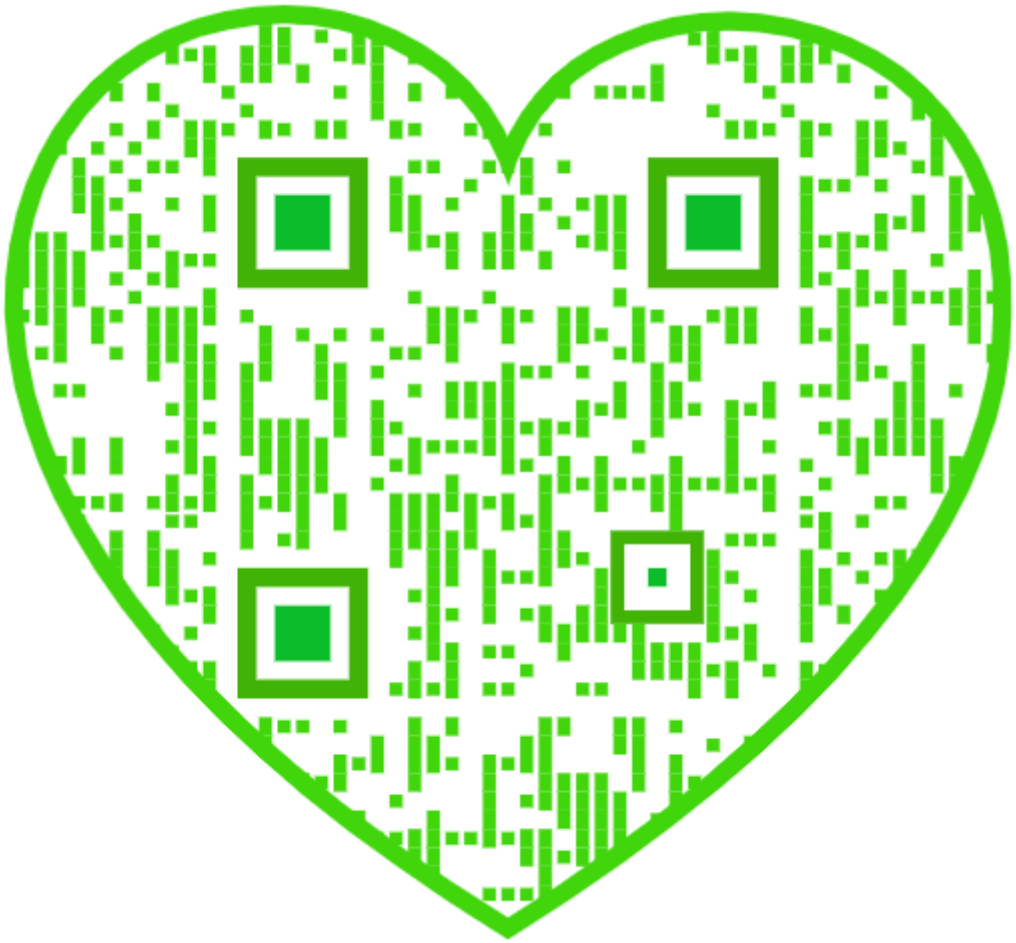

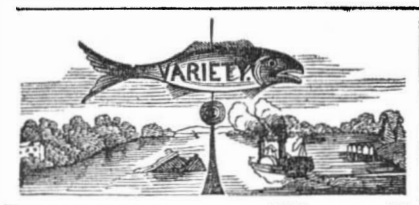

Meaning of Words.

We know the meaning of most words
By sound as well as sight;
They *mean*, although they have no *mien*,
So mind and *write* them *right*.

For thus—in 'eccentricity,'
One *sees* good many *c's*,
Also, in 'hubbubbubberous,'
The *b's* are thick as *bees*.

There are no *i's* in English '*eyes*.'
But *e's* there are in '*ease*,
A does want *ye* to make it '*aye*,'
There's but one *p* in *peas*.

Some *judges judge* the English tongue,
But kill it with a breath;
With wind and words they *sentence* some
Fine *sentences* to death.

A sea-horse is a sea-horse, when
You *see* him in the *sea;*
But when you see him in a *bay*,
A *bay* horse then is he;

Of *course* a race *course* is'nt *coarse*,
A *fine* is far from *fine;*
It is a saddening sight to see
A noble *pine* tree *pine*.

If *miners* are all *minors*, then,
Their guardians get their gains;
All glaziers extra *pains* should take
To put in extra *panes*.

A kitchen *maid* is, often *made*
To burn her face, and broil it,
A lady knows no labor, but
To *toil it* at her *toilet!*

How *do* you *do?*' said Sol to John,
'*So so*,' replied he:
'How do *you* do?' said John to Sal;
'Sometimes *sew*, *sew*,' said she.

If one were ridden o'er a *lot*,
He might his *lot* bewail,'
But 'twould be of no use to him
To *rail* against a *rail*.

A bat about a farmer's room,
Not long ago I knew
To *fly*. He caught a *fly*—and then
Flew up the chimney *flue;*

But such a *scene* was never *seen*,
(I am quite sure of that,)
As when with sticks, all hands essayed
To hit the *bat* a *bat*.

A *vane* is *vain*, one would suppose,
Because it wants a mind;
And, furthermore, 'tis blown about
By every idle wind.

'Tis *pun*-ishment for me to *pun*;
'Tis trifling, void of worth;
So let it pass unoticed like
The *dew* that's *due* to earth.

An Elephant Promenading.

One of the elephants of a menagerie, exhibiting at Buffalo recently, took the liberty, one morning, to walk out and view the city. The Advertiser says: 'The various wagons in the immediate vicinity were the only obstructions he encountered in his peregrinations, and these he scattered with a terrific momentum, piling one on the top of another, while others he flung to the right and left, just as fancy dictated. The gratuitous performance, however, was not without spectators, for some of the youths in the vicinity were "up and dressed," following close at his heels, and enjoying the sport with perfect gusto, ever and anon enthusiastically cheering the old fellow for his praiseworthy efforts to create a feeling in the wagon market, and a more urgent demand for wagon makers. In the midst of his recreations, he heard the keeper calling him by name, when he turned and immediately retraced his steps, and was conducted under the canopy without doing any further mischief.

Out West, they dry musquitoes for tooth picks

Black Angels.

While Bonaparte was First Consul, a negro artiste applied, one day, for protection, with respect to a painting which he wished to exhibit to the public. On Bonaparte's desiring to see it, it was brought into his presence. The picture represented the Father, Son, and Holy Ghost, surrounded by angels, but they were black. On beholding this ludicrous painting, Bonaparte broke into a hearty laugh. The artiste vindicated his production with much warmth, saying, "the whites believe that a black skin is the mark placed upon Cain by the Deity; but we on the contrary, believe that the white skin was placed upon man as a curse. You believe that the Devil is black, but we think he is white. You believe that God and the angels are white, and why should we not believe that they are black?" 'you have an undoubted right to do so,' replied the Consul, 'and can paint as many black angels as you please, but when they are finished, the best thing you can do, is to send them to St. Domingo.' The artiste, it appears, took his advice, and sent the picture to that Island, where it is preserved to this day with much veneration.

It's All the Same.

'I want a ticket for William Rica,' bawled out an honest son of Erin, as he presented himself at the ticket office of the Lowell railroad depot.

'Well, Willam Rica,' responded the ticket vender, 'where do you wish a ticket for?'

'Oh,' replied Pat, 'that's not my name sure. Its to William Rica I want to go.'

He was told there was no such place on the line. Pat gazed with a look of surprise for a moment, and then drew his greasy bundle still closer under his arm. At this critical moment one of his countrymen, who had listened to this dialogue at a distance, pushed his way up to his confused brother, and whispered in his ear that the place was Billerica.

'Och,' says Pat, discovering his blunder, and again addressing the ticket master, 'it's all the same, its Bill Rica I'm for, bad luck to your nicknames.'

Romantic Incident.

A letter from Madrid, under date August 11, says: 'A rather romantic incident occurred in the escape of 286 soldiers, compromised in the Gallacian Insurrection, which is not unworthy of being noticed. Amongst them was a young sergeant, who was attached to a beautiful girl. This attachment was returned with all the passionate fidelity of a Spanish female heart. When the lover was sentenced to be transported to the Havana, she dressed herself in soldier's clothes, and went on board with him at Ferrol. As the packet boat was approaching Lisbon, it was she who suggested to the crew of the revenue boat of the Vigo, and to others, to rise and overpower the crew of the packet; and she herself first laid her hand on the captain's collar and arrested him. She then placed herself at the head of the mutineers, who choose her for their leader without knowing who she was.'

Curious.

Two cats were observed near each other in a garden in this town, says the Wisconsin Argus, one morning recently, evidently to the great annoyance of a bird, (a swallow we believe) which resorted to the following curious expedient to get rid of her unwelcome company. A bed of pebbles being near by, she commenced diving to the ground and seizing a pebble with her claws as large as she could rise with, would ascend deliberately over the spot occupied by the cats, and let it drop. So rapidly was this performance repeated; and so large and well directed were some of the pebbles used by the sagacious little creature, that the cats soon became alarmed at what no doubt appeared to pussy's brains, a strange phenomenon, and decamped.

Transitions.

We are not the first that have been sometimes amused by the odd transitions from one subject to another, in the columns of a newspaper. In one of our exchanges, we find a very sentimental article on the subject of Love and Fame, but closely followed by another on *Carrots* and *Cabbage* worms.

Improved Dictionary.

Ammunition—Provisions to be offered by christians to their enemies. The newspapers are always loud in praise of such charity.

Amphibious—Having two natures, like reptiles and statesmen.

Amusement—The labor of the idle.

Analogy—An *ignus fatus* in the swamp of the English language which delights in leading grammarians in the mud.

Angel—A young lady seen from the thither side of matrimony.

Anti—A sort of fish that is always trying to swim up stream. You may be sure it is not a dead one.

Antidote—One poison to catch another. The world goes very much on the principle of antidotes. Government is an antidote for wickedness and rascality. Let us look out that the remedy does not become worse than the disease.

Antipathy—A world without it would be a dead level. A heaven without it—a mere flat pavement of mountain tops. We should not only love our enemies, but love to have enemies; else how shall we love our friends.

Apology—The talk of apes. No other people indulge in it.

Argument—A reason offered for an opinion, says Webster. But how much reason is there in a bad argument?

Assertion—The form of argument commonly used by asses.

Assertion—A substitute for wisdom and knowledge which is found to succeed much better than those qualities themselves.

The Friendless.

It is strange and sad that society does afford no stay, no support, to those who, left alone in the wide world, nay, more, that to be so left seems in a great degree to sever the bond between us and society. He must have some friends. Let him apply to them, we are apt to say, whenever one of these solitary ones comes before us, whether it is advice, assistance, or defence that is needed. 'He must have some friends.' It is a phrase in constant use, and in our own hearts we go on to say, if he has not, he must have lost them by his own fault, and yet how many events may deprive man, and much more frequently a woman, of the only friends he or she possessed?

'If I were so unlucky,' said an officer, 'as to have a stupid son, I would certainly, by all means, make him a parson.' A clergyman, who was in his company, replied, 'you think differently, sir from your father.'

A man 65 years old, a native and resident of Nantucket, has recently, for the first time in his life, visited the continent. He travelled as far as Sandwich, Mass., and greatly admired the appearance of an entire forest of trees; a curiosity he had never before witnessed.

A Yankee down East has invented a machine that will reap, thrash, and grind; also spin cotton, scrape potatoes, rock the cradle, darn stockings, whittle shingles, whistle Yankee Doodle, play checkers and puff itself in the newspapers.

A girl in one of the counties in tis State, who had a swivel or screw eye, looked so long and affectionately on a gin bottle that she actually drew out the cork. An apt instance of the power of true love.

At the farm-house where Digby spent July, he saw a gobbler trying to eat the strings of a nightcap, laid on the grass to bleach. 'That,' said he, 'is what I call introducing cotton into Turkey.'

There were in Rome, at the time of the election of the new Pope, twelve hundred prisoners who had been incarcerated in gloomy dungeons for political offences.

Fashionable female education is said to be, teaching a young lady to *talk* French, *walk* Spanish, *faint* gracefully, and *dance* the Polka.

A clock is a very *tick*-lish thing, more so than love, in our opinion.

'Oh hold your jaw!' as the Philistines said to Samson, when he had slain a thousand.

Mexico.

Many of our readers will, we doubt not, feel an unusual interest in any intelligence concerning the extent, wealth and population of Mexico, of which too little has generally been known in the United States; wherefore we insert the following table, showing the population of the several States and principal cities of that Republic, which will be found to exceed what has been ordinarily supposed by those who have not given particular attention to the subject.

States.	Popl'n	Capitols.	Pop.
Chiapas,	93,000	Chiapas,	3,000
Yucatan,	300,000	Merida,	10,000
Tabasco,	75,000	Tabasco,	5,800
Oaxaca,	600,000	Oaxaca,	40,000
Vera Cruz,	200,000	Vera Cruz,	30,000
Puebla,	900,000	Puebla,	70,000
Mexico,	1,500,000	Tlalpan,	6,000
Mechoacan,	450,000	Valladolid,	25,000
Queratarо,	200,000	Queratarо,	40,000
Guanaxuato,	450,000	Guanaxuato,	60,000
Xalisco,	800,000	Gaudalaxara,	60,000
Zacetecas,	272,000	Zacetecas,	25,000
S. Luis Potosi,	250,000	S. Luis Potosi,	40,000
New Leon,	100,000	Monterey,	15,000
Tamaulipas,	150,000	Aguazo,	6,000
Coahuila,	125,000	Monclova,	3,000
Chihuahua,	212,000	Chihuahua,	30,000
Durango,	175,000	Durango,	35,000
Sonora and Clinaion,	180,000	Villa Fuerte,	4,000
Federal District		Mexico,	180,000

The Mile.

The following table gives the number of yards contained in a mile in different countries:

	Yards.
A mile in England or America,	1760
Russia,	1100
Italy,	1476
Scotland and Ireland,	2200
Poland,	4400
Spain,	5028
Germany,	5066
Sweden and Denmark,	7223
Hungary,	8800
League in America or England,	5280

The Drunkard's Farewell.

Farewell drink, so nigh and handy,
Farewell rum, and gin, and brandy,
Farewell huts that see all weathers,
Farewell beds that have no feathers,
Farewell ways that I've forsaken,
Farewell tubs that have no bacon,
Farewell empty pots and kettles,
Farewell cupboards without 'Vittals,'
Farewell faces red as crimson,
Farewell hats that have no rims on,
Farewell coat, more holes than stitches,
Farewell ragged vest and breeches,
Farewell broken chairs and tables,
Farewell dwellings worse than stables,
Farewell drunken song and carol,
Farewell friends who love the barrel,
Farewell drinking lads and lasses,
Farewell windows without glasses,
Farewell floors that need a swab-file,
Farewell yards that have no wood-pile,
Farewell bonds that I have broken,
Farewell oaths that I have spoken,
Farewell landlords and bar tenders,
Farewell all blue-devil senders.

Rapid Improvement.

Fifteen years ago, Chicago, Ill., contained only five small stores and about 250 inhabitants. The population now numbers about 15,000, and the business of the place, in a single day, is equal to the entire business of the year 1830.

The number of pupils in all the schools in India, is only 3891:—less than one to 5000 inhabitants, after the expense of millions in Missionary operations.

The total export and import trade of the various harbors on the great lakes, in 1841 was $65,826,00. It is estimated at $100,000,000 for the present year.

'It is seldom that an apprentice, who makes his master's interest his own, is not repaid in various favors and kindness.'

In the United Kingdom of Great Britain there are 300,000 Odd Fellows.

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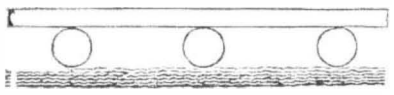
Removing Ponderous Bodies



When the huge car of the gross idol Juggernaut, is to be removed, many thousands of people string on to several long ropes, and with great shouting and yelling, succeed in dragging it a few feet. In this country, a similar practice is followed when a house, barn, or an exceedingly heavy stone is to be removed; with this difference however, that two or more strings of oxen, are usually put to the draught, instead of men. The most common method of avoiding friction, in removing buildings, is to place several stout planks on the ground, under the sills of the building, and then, having raised the sills by means of pries and levers, a row of *rollers*—cylindric blocks of wood, six to ten inches in diameter,—are placed between the sills and the planks, in the manner shewn in the cut above. These rollers, as the building is in progress leaves them, must be taken up, carried forward, and again thrown on the ground, before the sill, or the shoe or spar, on which for safety the sill may have been placed. Yet, sometimes the more refined method is adopted, of placing the building on two stout timbers which project some distance before and behind the building, and then placing each end of each timber, on the axletree of a stout pair of wheels. Yet in this case, a long team of oxen or horses is required, which greatly endangers he building during the process, on account of the rapidity of the motion, and the difficulty of stopping the team suddenly, in case of any impediment, or derangement in any part of the process. In the process of removing heavy blocks of granite, cars of mammoth size and strength have been used, having been constructed for the purpose with brakes to retard their progress when going down hill. Still the *long team* is required and the process is both difficult and dangerous. These subjects have been introduced in this place, as a preliminary to an exposition of the absurdity of the practice of such methods, when it is well known that by a very simple apparatus, the power of a single horse may be so applied as to remove any moveable object, and that with a steady and uniform motion, up hill or down, and requiring the attendance of only one man to manage it. We need not describe any particular construction of machinery for this purpose, further than to say that a Portable Horse-Power: Willis', Lane's, Hale's, or Porter's, for instance: is to be placed forward of, or on the forward part of the Car, and connected to the wheels thereof, that the motion of the wheels of the car, shall be as one to fifty of that of the shaft of the horse-power; in this way, a force equal to the draught of one hundred horses, will be applied to the loaded car, but the motion will be proportionably slow; moving only about a hundred rods per day. This apparatus may be applied to the removing of houses, or other buildings, and the moderate motion of the object, will give the superintendent ample time to prepare the ground, and guard against those many accidents which are consequent of the sudden or irregular movements of large teams; and in case of descending hills, the one horse has the same power in holding back the load, that a hundred horses would have by the ordinary harness.

(*To be continued.*)

Information to persons having business to transact at the Patent Office.

ON THE APPLICATION FOR A PATENT.

SEC. 13. No application can be examined until the fee for the patent is paid, and the specification, model, and drawings filed.

SEC. 14. The application for a patent must be made by petition to the *Commissioner of Patents*, signifying the desire of obtaining an exclusive property in the invention or discovery, and praying that a patent may be granted therefor, as in the form annexed thereto; *which petition should be signed by the inventor.*

DESCRIPTION OF SPECIFICATION.

SEC. 15. Before any inventor shall receive a patent for any such new invention or discovery, he shall deliver a written description of his invention or discovery, and of the manner and process of making, constructing, using, and compounding the same, in such full, clear, and exact terms, avoiding unnecessary prolixity, as to enable any person skilled in the art or science to which it appertains, or with which it is most clearly connected, to make, construct, compound, and use the same; and in case of any machine, he shall fully explain the principle, and the several modes in which he has contemplated the application of that principle or character by which it may be distinguished from other inventions; and shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery.—Act of 1836, sec. 6.

SEC. 16. It is important, in all cases, to have the specification describe the sections of the drawings, and refer by letters to the parts; duplicate drawings being required.

SEC. 14. A defective specification or drawing may be amended at any time before a patent has issued; in which case the applicant will be required to make oath anew.

ON NEW IMPROVEMENTS.

SEC. 18. "Whenever the original patentee shall be desirous of adding the description and specification of any new improvement of the original invention or discovery, which shall have been invented or discovered by him subsequent to the date of his patent, he may, like proceedings being had in all respects as in the case of original applications, and on the payment of fifteen dollars, as hereinafter mentioned, have the same annexed to the original description and specification; and the Commissioner shall certify on the margin of such annexed description and specification, the time of its being annexed and recorded; and the same shall thereafter have the same effect in law, to all intents and purposes, as though it had been embraced in the original description and specification."—Act of 1836, sec. 13.

SEC. 19. In all such cases, the claim in the original patent is subject to a re-examination; and if it shall appear that any part of the claim was not original at the time of granting the patent, a disclaimer of said part must be filed in the Patent Office, or the specification of claims restricted, by having the patent reissued before the improvement can be added. And if there is not any thing which can be claimed, the improvement cannot be added, but may be secured by a separate patent, on the payment of the fee of thirty dollars. If the patent was granted before the 15th of December, 1836, a model and drawings of the invention as first patented, verified by oath, must be furnished, unless dispensed with by the Commissioner.

SEC 20. No patent for an improvement can be granted to the original inventor, assignee, or possessor of a patent, granted before the 15th of December, 1836, until a model and drawings of the invention, as originally patented, verified by oath, shall have been deposited, unless dispensed with by the Commissioner.

SEC. 21. "Every inventor, before he can receive a patent, must take oath or affirmation that he does verily believe that he is the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement, for which he solicits a patent; and that he does not know or believe that the same was ever before known or used; and also of what country he is a citizen."—Act of 1836, sec. 6. In every case the oath or affidavit must be made before a person having general powers to administer oaths. Justices of the Peace have not in all cases this general power.

SEC. 22. If the applicant be an alien, and have resided one year in the United States next preceding the application, and have given legal notice of his intention to become a citizen of the United States, he must take oath to these facts before he can apply for a patent for the same fee as that paid by a citizen.

OF DRAWINGS AND SPECIMENS OF INGREDIENTS.

SEC. 23. The law requires that "the applicant for a patent shall accompany his application with drawings and written references, when the nature of the case admits of drawings." These drawings should, in general, be in perspective, and neatly executed; and such parts as can not be shown in perspective, must, if described, be represented in section, or detail. Duplicates of them are required, as one must accompany the patent when issued, as explanatory of it, and one must be kept on file in the office.

SEC. 24. The drawings must be signed by the patentee, and attested by two witnesses, except when the specification describes the sections or figures, and refers to the parts by letters; in which case they are neither required to be signed, nor accompanied by written references upon the drawings, the whole making one instrument. Drawings are absolutely necessary, when the case admits of them.

SEC. 25. An examination, as to originality of invention, may be made on a single drawing; but duplicates will be required before the patent issues.

God Is Love.

There have indeed been men so infatuated or infuriated by the crosses which their crimes brought and bound upon their shoulders, that they have called God a tyrant, and the world a prison. But how do tyrants treat their victims? If not by immediate death, or protracted torture, by shutting them up in dungeons that shut out the light, and shut in foul vapors and vermin. But now look out upon the surface of our world clad, in verdure and bloom, bearing fruit and breathing fragrance, swelling into mountain grandeur, or sweeping into level plains and sweet vallies—is *this* earth a prison or prison-like? Why, angels might linger in most of its groves and gardens, and even sing, too, on its hills and dales, either when the sun flushes them with brilliancy, or when the moon and stars shine upon their herbage and flowers. The six-winged seraphims *did* sing. 'The earth is full of thy glory,' although they caught only a passing glimpse of it in their swift flight from heaven to the temple, 'in the year that king Uzziah died,' Isa. zi. 1. 'God is love,' let infidelity or misanthropy say what they will! They speak under a firmament whose lamps give them the lie; and in a landscape that both refutes and rebukes them.

A Mother's Grave.

Earth has some sacred spots, where we feel like loosing the shoes from our feet, and treading with holy reverence; where the common words of social converse seem rude, and the smile of pleasure unfitting; places where friendship's hands have lingered in each other; where vows have been plighted, prayers offered, and the tears of parting shed. Oh, how the thoughts hover around such places, and travel back through unmeasured space to visit them. But of all the spots on this green earth, none is so sacred as that where rest, waiting the resurrection, those we once cherished and loved—our brothers, our sisters, our fathers or our children. Hence in all the ages the better part of mankind have chosen and loved spots for the burial of their dead; and on these spots they have loved to wander at eventide to meditate and weep. But of all places, even among the charnel houses of the dead, none is so sacred as a *Mother's Grave.*

There sleeps the nurse of our infancy—the guide of our youth—the counsellor of our riper years—our friend when others deserted us; she whose heart was a stranger to every other feeling but love, and who could always find excuses for us when we can find none for ourselves. There she sleeps, and we love the very earth for her sake.

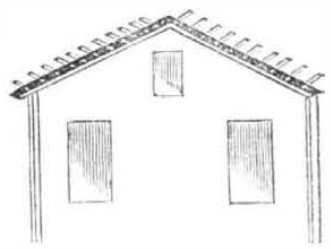
With sentiments like these I turned aside from the gaities of life to the narrow habitations of the dead. I wandered among those who had commenced life with me in hope.—Here distinctions were forgotten; at least by the quiet sleepers around me. I saw the rich and the great, who scorned the poor, and shunned them as if infected with the plague, quietly sleeping by their side. How true the language:

"How loved, how valued once, avails thee not,
To whom related or by whom begot;
A heap of dust alone remains of thee—
'Tis all thou art, and all the proud shall be."

The annual income of Louis Philippe, from what the nation allows him, in addition to that of his private property, is estimated to be $3,000,000:—about $9,000 per day.

Wooden pavements have been in use several years in Montreal, without any symptoms of decay.

Ventilated Roofs.



Most of our readers are aware of the advantage derived from opening the scuttle in a roof in hot weather, thus producing a draught of air through the lower part of a house, though but in a small degree. It has been recently suggested to construct a roof on the plan of the venitian blinds, so that nearly the whole roof may be opened occasionally, so as to produce a sensible current of air, from the open doors and windows below. This plan is evidently feasible, and would not be attended with much extra expense, even if the slats or strips composing the roof were of magnetised iron. The means of opening or closing the roof might be managed by rods inside, which might be conducted by pulleys to the stair way, so as to be managed with perfect facility, as occasion might require. We should be glad to see some builder introduce the fashion.

Temperature of the Interior of the Earth.

The circumstance of the earth's being flattened at the poles, and protuberant at the equator, is the natural and necessary result of its rotation on its axis. But in order that it might yield to the force resulting from such a motion, the matter of which it is composed, must have been soft. Now, although water is capable of being compressed, and, so far as we can judge, of taking any degree of density, according to the force exerted upon it, still the shape of the earth is not that which would have resulted from such a mass of water.—There may be particular portions of the sea that extend to the depth of several miles, as there are particular points of the solid crust of continents, that rise to this height above the general level. Still we have reason to believe that the general depth of the ocean does not much exceed three thousand feet. It is thought that heat may have been the original cause of the fluidity of the earth, and that there may still remain enough to keep the interior portions in the same state. The more this subject has been examined, the more the evidence has accumulated in favor of the position that the temperature increases as we descend below the surface. There are numerous instances in which we have been able, by means of natural or artificial excavations, to penetrate to the depth of from 1200 to 1600 feet. The general inference from all these observations, made in different parts of the earth, is, that there is an increase of heat amounting to 1 degree of Fahrenheit for every 46 feet in depth; that at the depth of 10,000 feet the heat would be sufficient to boil water, and that at the depth of about 100 miles, or 1 40th part of the distance to the centre, the heat would be intense enough to melt most of the earths and stones that are known to enter into the composition of the globe. These facts and inferences have an important bearing upon the phenomena of earthquakes and volcanoes, and open a wide field of speculation to the natural historian and geologist.—[Dr. Lardner.

Effect of Promotion.

In a western county, a miserable drunken loafer was elected to the office of Justice of the Peace, for the fun of it. He immediately became temperate and industrious, dressed himself in good style, and discharged the duties of the office in a respectable manner.

It is reported that some of the rum advocates in the towns in which no licenses are granted, are giving away liquors for the purpose of showing that more drunkenness prevails, under the 'no license' system, than formerly.

It has been proved by experiments, that the human body is capable of bearing 350 degrees of heat, in an oven, for several minutes, without injury.

The number of clerks employed in the Bank of England is about eight hundred; at salaries from £450 to £10,000 a year.

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NEW INVENTIONS.

We have not yet obtained full descriptions of the following inventions, which have been recently entered at the Patent Office, but insert the claims of the inventors thereof, that those who may be engaged in making improvements in the same subjects, may be enabled to judge whether their own inventions will interfere with the claims already entered by others. We give the names of the inventors, with the date of the entry of the inventions.

BY DANIEL BARNUM.

19th Sept. 1846.

Improvement in Double Cylinder Steam Engines.

I claim, 1st. The mode of connecting and arranging two cylinders side by side with steam passages from one to the other direct, at each end, in combination with valves so arranged and operated as to admit the steam from the boiler into one cylinder only, and from that one into the same end of the other cylinder at the half stroke (more or less) of the piston of the first cylinder.

2d. I claim the mode of working the expansion and exhaust valves, contradistinguished from the working of all other valves, they each being opened, by the toe of one rock shaft, in advance of the regular or usual period—the one, at the proper time to allow the steam to pass into the second cylinder, to act by expansion—and the other, at the proper time to prevent the compression of steam, or reaction between the two pistons—from which toes the valves are and taken, by a toe of another rock shaft, for the purpose of being sustained and kept open the requisite length of time for the attainment of the ends sought.

3d. I claim as new, the arrangement for disconnecting the two cylinders, by simply opening the two exhaust valves to the second cylinder, and unhooking the eccentric which works the expansion valves between the two cylinders, when the first cylinder is used, as a single engine, worked in the ordinary way, or by hand, for the purpose of reversing the motion, or stopping or starting the engine.

4th, and lastly. I claim the arrangement and application of the several parts with each other, as new, in combination with a pair of cranks which are attached to one main or driving shaft, set to a right angle or either more or less than a right angle, with each other, for the purpose of working the pistons of the two cylinders in the same direction, by the primary and expansive action of the steam, and exhausting to the air, or a condenser forming a vacuum, each working by one channel, from the same end of the two cylinders, at the same time.

—

BY GEORGE R. MOORE.

19th Sept., 1846.

Improvement in Machinery for Double Seaming.

What I claim is the combination of the roller, with the head, and the combination and arrangement of the gauze, for the purpose of supporting the inside of the vessel at the bottom, while being operated upon, when the sides thereof are flaring. And I claim the employment of the shoulder, which terminates the base of the conical part of the head, to keep the bottom in place while making the first bend.

—

BY EDWARD BRADFIELD.

15th Sept., 1846.

Improvement in bolting Flour.

What I claim is constructing the inside cylinder, with a combination of cards and hair brushes, also in combination with the above the flat screen, the double separator, the spring bearer, and the manner in which the outside cylinder revolves on the cylindrical journals, without coming in contact with the shaft.

—

BY SAMUEL S. WALLEY.

15th Sept., 1846.

Improvement in Coffer Dams.

What I claim is the manner in which I have arranged and combined the respective parts thereof, so as to adapt it to the purposes intended, that is to say: I claim in combination the providing of the inner box or coffer, with doors at its lower point, which, when closed, will convert it into a buoyant vessel, said coffer being provided with elastic padding an its lower edge, and troughs or boxes capable of receiving such load of stones, or other materials, as will sink, and press the coffer down upon the bottom of the stream or other water, and the expedient of letting in the water to fill the side boxes, to increase the pressure and the pumping out of said water, to render it more buoyant.

—

BY THADDEUS FAIRBANKS.

15th Sept., 1846.

Improvement in Steelyards.

That which I claim, consists in the auxiliary scale, and weight, as combined and operating with the main weight.

—

BY ISAAC EDWARDS.

19th Sept., 1846.

Improvement in Cultivator.

What I claim is the manner of combining the hooks and eyes, and clevis, by which the sides of the plow may be elevated and raised out of the ground, so as to conform to the inequalities and irregularities in the corn rows, without disturbing the other parts of the machine, and without the necessity of raising the entire plow.

—

BY WILLIAM WHITCOMB.

19th Sept., 1846.

Improvement in Bee Hives.

What I claim is the improved manner of arranging each box and its case in the main chamber of the hive, that is to say, the so disposing them therein, that two diagonal planes, passing through their corners, shall be respectively parallel to the bottom and sides of the hive.

—

BY OLIVER ALLEN.

19th Sept., 1846.

Improvement in Whaling Lances.

I claim the lance head, the cylindrical barrel, or bomb, and the pruning tube, in combination with one another, and arranged and operating together.

—

BY ISAAC MAYFIELD.

19th Sept., 1846.

Improvement in Strawcutters.

What I claim. is, 1st. The combination and arrangement of levers, rods and reaching arm, and serpentine grooved wheel, for raising the presser and turning the feed roller simultaneously, and for bringing down the presser at the moment the feed or reaching arm slides loosely over the teeth of the rag wheel.

2d. Constructing the feed roller with curved teeth, for raking forward the straw without causing it to become entangled upon the teeth or roller.

3d. I also claim the combination of the sharp edged triangular shaped plates or stops with the steel plate at the mouth of the cutting box.

—

BY HENRY MELLISH.

19th Sept., 1846.

Improvement in Self-setting Tail Blocks.

What I claim is, the reversed rows of teeth on the underside of the slide, the jack, and the angular lever, and dog for moving and setting the slide, the horizontal bar, on which the lever rides, for guiding the jack in the direction parallel to that of the slide, and the moveable fulcrum in its block, for gauging the thickness of the stuff to be sawed; and it is to be expressly understood that I claim them not separately, but in the combination.

—

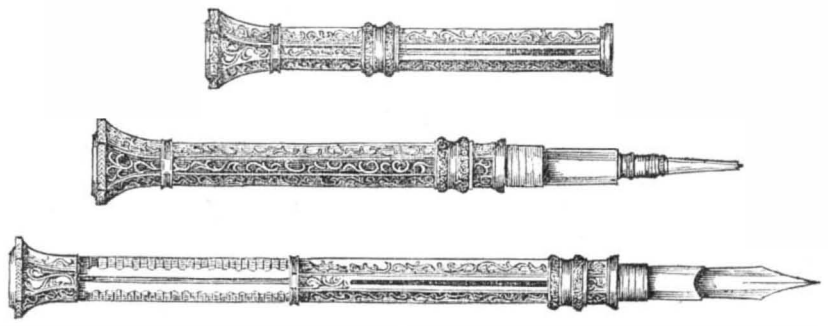
BY THOMAS LEIGHTON.

19th Sept., 1846.

Improvement in Glass Furnaces.

What I claim is, my improved mode of arranging the tease hole or fuel opening of the fire place, with respect to the seize and in the cave.

BAGLEY'S PATENT EXTENSION PENHOLDER.



We have frequently spoken favorably of Bagley's diamond pointed gold pen; and we still esteem it, with its combinations, among the most important improvements of the age. The article now introduced is the subject of a new patent, and is an excellent as well as elegant improvement in the penholder and ever-point pencil. The first of the above figure represents the improved article in its ordinary condensed form: the second shows the extension of the pencil point, merely: the third figure presents a full view of the article, with the pen and sliding tube both extended, and ready for use. The diamond pointed pen and ever-pointed pencil are both combined in such a manner that either may be used, as occasion requires:—both being connected in a short section, and so adjusted that either the pen or the pencil may be inserted in the tube, while the other projects forward ready for use. Within this short section, is a box containing a supply of leads for the pencil. There is much ingenuity displayed in the arrangements and combination of the sections: indeed, when viewing the article in the extended form, it appears mysterious how it can be closed up to its compact form, without some internal interference of the several parts. We are gratified to learn that there is an extensive demand for the improved article, whereby the inventor is likely to be richly remunerated for the expense of preparation for introducing and manufacturing the same, in the splendid style in which it appears. They are manufactured at 189 Broadway.

The Continental Patent Metallised Wood Company.

The complete success, says the London Morning Journal, which has attended the operations of Payne's patent process ior the metallisation, and consequent preservation, of every description of timber, under every circumstance in this country, and the wide field which is now opening on the continent for its advantageous application, has induced the formation of a company for the purpose of purchasing and working the foreign patents, viz: for France, Austria, Belgium and Holland We have on so many occasions described the process and advantages of Payne's Patent that a passing allusion to some of its valuable properties will suffice. It is necessary to premise, that the process is simple and inexpensive—the wood is saturated, by means of exhaustation and pressure, with sulphate of iron, and afterwards with an alkaline solution, by which means an insoluble metallic substance is created in the pores of the wood by chemical decomposition. The economy of the process, after the first outlay for machinery and stations is remarkable, as may be inferred from the price of the metals employed in former processes—mercury and copper; the former being enormously expensive while the cost of the latter bears to that of iron, the metal employed in the present process, a ratio of £40 to £3 10s. The wood is made to partake of the durability of metal; while its elasticity is preserved in full force, as proved by the fact that, thus prepared, it has recovered from a deflection made by 140 tons on the segment of an iron wheel, three inches broad in the tire; it is also rendered uninflammable, is impervious to the ravages of insects, and the process is equally applicable to timber just hewn, as to the best seasoned—in fact, it renders the most recent cut wood immediately fit for use. The great demand which must arise from carrying out this system on the continent, and the advantages which will accrue to those who invest capital in the undertaking, is fully apparent. In France, Austria and Belgium, iron is dear, and the price increasing; wood on the contrary is cheap, and therefore a system which will enable the cheaper article, (wood,) for numerous purposes, to supersede the dearer, (iron,) gives every prospect of a large and profitable return. In Belgium and Holland, the sole article of wooden clogs (or sabots) worn by the people, would give a considerable income; and in France and Austria, where wood is almost the only fuel, in profitable branch of business would arise, in saturating wood for fuel with an aluminous solution, rendering it more lasting in the fire without injuring its combustibility. The process has already been used on the Paris and Sceaux railway.

The Honest Boy.

A gentleman from the country placed his son with a dry goods merchant in —— street. For a time all went well. At length a lady came to the store to purchase a silk dress, and the young man waited on her. The price demanded was agreed to, and he proceeded to fold the goods. He discovered before he had finished, a flaw in the silk, and pointing it out to the lady, said, 'Madam, I deem it my duty to tell you there is a fracture in the silk.'

Of course she did not take it.

The merchant overheard the remark, and immediately wrote to the father of the young man to come and take him home 'for,' said he, 'he will never make a merchant.'

The father, who had ever reposed confidence in his son, was much grieved, and hastened to be informed of his deficiencies. 'Why will he not make a merchant?' asked he.

'Because he has no tact,' was the answer.—'Only a few days ago, he told a lady, voluntarily, who was buying silk of him, that the goods were damaged, and I lost the bargain. Purchasers must look out for themselves. If they cannot discover flaws, it would be foolishness in me to tell them of their existence.'

'And is that all his fault?' asked the parent.

'Yes, said the merchant,' he is very well in other respects.'

'Then I love my son better than ever; and I thank you for telling me of the matter; I would not have him another day in your store for the world.'

Another Ship Canal.

The British Government is seriously considering the project of constructing a ship canal around the falls of St. Mary, thereby opening a communication for the largest class of vsesels with Lake Superior. A survey of the route is now in progress. The length of canal required is only two miles, and the estimated cost, but $200,000.

General Kearney's Command.

It is supposed that the troops under General Kearney will winter at Santa Fe. Another Regiment is equipped from Missouri and is now on its way, consisting of 1000 men, and the whole command, should it reach Santa Fe, will be 4,800 men, and with teamsters and attendants will amount to 6000.

Steam Power on Canals.

It is said to be the intention of the proprietors of the new canal about to be opened between Thomaston, Me., and Searsmont or Montville, to navigate the canal solely by steam power. Each boat will be supplied with a small engine, and an apparatus similar to what is termed the screw propellers.

An old circus rider, accustomed to *ground and lofty tumbling*, lately tumbled from the third story of a house in Boston, but managed to land on his feet, with no other injury than breaking his ancles.

The St. Charles Hotel, at New Orleans, is said to have five hundred regular boarders, besides nearly two hundred servants and employers. A large family for one house.

There are said to have been fifteen hundred patents granted in the United States, on various improvements and modifications of *stoves*.

A line of magnetic telegraph has been put in operation between Philadelphia and Lancaster, Pa.

A diamond has been found in Brazil, the approximative value of which is $200,000. It was sold by the finder for about $150.

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NEW YORK, OCTOBER 3, 1846.

Privilege of Inventors.

There appears to be an erroneous impression prevalent among inventors, on the subject of using or selling their newly invented or improved articles, prior to making application for patents: and some have felt restrained from selling, or offering for sale, such articles until letters patent were issued therefor. We have had frequent occasion to explain this point to inventors, and assure them of their privilege of proving the saleability as well as utility of their inventions, before their inventions were entered at the Patent Office, especially if they took the precaution to publish full notices of their inventions, and of their intention to apply for patents therefor. For the purpose of inducing confidence in this respect, we subjoin the 7th section of the act of Congress on this subject, passed in 1839.

'And be it further enacted, That every person or corporation who has, or shall have, purchased or constructed any newly invented machine, manufacture, or composition of matter, prior to the application by the inventor or discoverer for a patent, shall be held to possess the right to use, and vend to others to be used, the specific machine, manufacture or composition of matter so made or purchased, without liability therefor to the inventor, or any other person interested in such invention; and no patent shall be held to be invalid, by reason of such purchase, sale, or use, prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public, or that such purchase, sale, or prior use, has been for more than two years prior to such application for a patent.'

Ruinous tendency of the Free Trade policy at the South.

It has been distinctly understood from the commencement of this paper, that we advocate tariff protection of American manufactures; and not for the sake of the manufacturers alone, but for the sake of the whole country, We have felt assured that the people of the South who have strongly advocated free trade, were blind to their own interests. Many of the citizens of the Southern Sfates are waking up to this fact, and have ventured to speak in a manner consistent with common sense on the subject. As a specimen of this, we give, below, an extract from a letter from a gentleman in South Carolina, as published in the Charleston Mercury.

'Every body in this section is engaged in subduing the grass which has sprung up luxuriantly during the late rains. Corn looks badly, and cotton worse. There has been a good deal of suffering this year, on account of the scarcity in the provision crops, and I fear there will be more next. A purely agricultural people, you see, will always lead a miserable existence. If the crops are good, there is no one to purchase, and all they can get is a mere living. On the other hand, if the crops fail, they all suffer together, because they have no money to purchase from abroad. Even the prospect of fruit, so fine, a month ago, is likely to be cut off. The apples are falling before they are ripe; peaches have but little flavor. Melons of all kinds are comparatively tasteless, and the grapes, which promised so well, are rotting by the bushel. Such is our fate, and I suppose we must submit to it. Had we less opposition to a fair Tariff in Carolina, and a little more diversity of labor, we might be supplied with means, when our crops are short, to purchase from abroad.'

City Improvements.

The hack and omnibus owners are endeavoring to procure the removal of the rails from the Bowery, Broom and Centre streets. Let them work at it. If they succeed, it will be only a signal for relaying them in a more substantial form than at present.

Mechanism.

The science of mechanism, embraces almost every principle of Natural Philosophy—and may be defined generally, a knowledge of the properties possessed by matter, and the various uses to which it may be applied in the progress of civilization.

Without a knowledge of this science, man would be a mere machine—a thing unworthy of his omnipotent intellect. Compelled forever to remain stationary, or at least, unable to visit the isles of the ocean, or to move in the 'living thing,' across the clear blue sea, or the tranquil river—he would live in perfect ignorance of other men and distant climes; without an idea of the principles of mechanism, man would remain exposed to the alterations of heat and cold, sunshine and shade, storm and calm; land lies before him that knows not of these wonderful things—stormy, unimproved and uncultivated. His amusements are scarcely above those of the beasts that roam over the fields, while his greater agility, keener perception, and intellect, render him capable of enjoying the entertainments of the angels above. But once let philosophy be demonstrated to the wild nation — let the knowledge of mechanism be diffused—and so all 'the valleys shall be raised up, the hills made low, the rough places smooth, and the crooked straight. Then shall the wilderness and the solitary place be made glad, and the desert rejoice and blossom as the rose.' Where the uncouth hut stood, the comfortable rooms of a warm mansion appear; damp walls are exchanged for pleasant ceilings; friends, thousands of miles apart, are brought by the power of mechanism, near; trade goes on between the most distant nations of the earth, to facilitate the comfort and happiness of man:

'Great river of progression,
Pursue thy onward way;
Roll through to every nation,
Nor in thy grandeur stay!'

Railroads.

The St. Louis New Era says, "The latter experiments prove that railroads can be profitably used in carrying heavy freights at low rates, and that they will come into successful competition with navigable rivers. The experience of the past year shows that they can be successfully used in transporting southern cotton to the north, and in carrying the produce of the valley of the Mississippi to the Atlantic ports. We need a railroad direct from St Louis to the Atlantic," and must have one, too, at no distant day. The subject ought to be agitated, *agitated*, AGITATED constantly.

Extraordinary Facilities of Education.

Some of the Albany papers give an astonishing account of the progress of certain classes of pupils, in different branches of literature, under the tuition of Prof. Wailon. By his improved mode, children 12 years old have acquired a very perfect knowledge of Geography, retaining the names of places and things, by a combinations of Mnemonics, with the use of improved, maps, globes, &c. If Mr. Wailon is equally successful in other branches, he will confer great advantages on the community.

The Magnetic Telegraph between this city and Buffalo, is said to have as much business as it can manage, and, of course, is making immense profits.

Corn Roots.

There are now, in the National Gallery, corn roots taken from one side of a hill of corn laid bare by a freshet, sixty days after planting, some of the larger roots of which, covered with lateral branching roots, were more than four feet long. The aggregate length of all the roots in the hill, fine and coarse, were estimated at over 8000 feet.

Successful Advertising.

A few days since a lady of New York advertised for a husband in one of the Pittsburg papers. Last week the same paper contained the announcement of her marriage to a respectable citizen of that place.

It is said that gold has been discovered in such quantities in Siberia, as to endanger its present value. 11,000 miners are at work there, and 23,000 more could find employment.

Scientific Mechanic.

Advantages derived from Momentum.—There are very few branches of business, but what are in a great measure, dependent on the momentum of bodies, to effect the ordinary operation thereof. To commence with the farmer—if he chops a log, or drives a post, he depends on the momentum of his axe at every stroke to accomplish the work, after having been put in motion for that purpose. If he shovels earth, or manure, he depends on momentum to carry the same, from the shovel to the cart. A carpenter, requires momentum to impel his broad-axe, or adz, through the timber, separating the chips from the main body. The momentum of the mallet drives the chissel, and that of the hammer, the nail. The effect of the sledge-hammer of the blacksmith, is produced by the same principle.—The turner, having produced a half-revolution of his lathe-wheel, by the pressure of his foot, depends on momentum to accomplish the other half. A sailor is dependent on momentum to continue the headway of his vessel while *going in stays*; or that of his boat, during the interval between the dips of the oar. The sportsman would find but poor sport, were it not for the action of momentum, in carrying the ball or shot, from his gun to the game. A coachman's whip would be of little service, without the aid of momentum, and even the pedestrian, would find it a very awkward job to propel his body by the action of his legs and feet, without the same regulator. Machinists and engineers, well know the value of the momentum of the fly wheel. The pendulum of a clock, and the balance wheel of a watch, equally dependent on this principle, for their peculiar regularity of motion, nor can any method be found for measuring time, without it. Without momentum, there could be no such thing as wind—for even a moving current of air would be destitute of force or effect. All fire engines would be useless, and projectiles would not be known. Bells, and stringed instruments would be silent. Children could no longer play with balls, hoops, or kites, and even the planets, being stationary in their respective places, there would be no change of day, night, or seasons. Time, itself, would hardly be known, and all nature would be greatly deficient of the beauty, science, and interesting variety, which now furnishes much of the excellence of life, and happiness of man.

Portable Iron Boats.

Messrs. Knapp & Foster, of Pittsburg, have completed four iron boats, intended for the use of the U. S. Army. These boats are each 45 feet in length, 10 feet in breadth, and 4 1-2 feet deep. They are wholly of iron, and built after the fashion of a canal section boat, in three sections of 15 feet each. By means of bulk heads each section is perfectly water tight. Both ends are modelled alike, so that the boat can go either way. By building them in sections, they can easily be transported across the country on wagons.

A farm in Cleveland, Ohio, contains six thousand fruit trees, consisting of a fair proportion of apple, pear, peach, plum and cherry trees.

Upwards of three thousand cases of suicide occurred in the city of Paris within the last year. It is getting to be quite a fashionable amusement.

Earthquakes have been remarkably frequent within the year past. We have accounts of no less than fifteen within the last nine months.

The sailors in Buffalo are on a strike for higher wages. They are now receiving $18 per month, and demand $25.

The Parkersburg (Va.) Gazette of the 10th inst. announces that seven slaves, belonging to Abel James, Esq., absconded a few nights before.

The latest case of absence of mind is recorded of a lady, about to 'whip up' some eggs for a sponge cake, who whipped *the baby*, and sung Watt's cradle hymn to the *eggs*.

A new iron steamer is being constructed, to run between Lewiston and Montreal, and is expected to make the distance in 24 hours.

The Mormon War.

We have neglected to publish any thing on this subject lately, for the reason that we are heartily ashamed for our country, in view of the movements now going on in a section of the Union. It is indeed among the wonders of this wonderful age, to see in one of our States, an armed and organized force of five or six hundred, making open war against another organized band of 300 peaceable citizens of the same State, and actually fighting with artillery and muskets, while the ridiculously tame and inefficient municipal branch of government, calmly looks on to see the sport without interfering. The villainous, cowardly band of anti-Mormons, having after much manœuvreing, advanced toward Nauvoo, the Mormons marched out to oppose them, and a long and smoky battle was fought, which would undoubtedly have been a bloody battle, had the assailants ventured within gunshot of their opponents. Subsequently several assaults have been made by the anti-Mormons, but their cowardice has thus far prevented the accomplishment of any thing very honorable to themselves, or disastrous to the Mormons, except the loss of a few men killed and wounded. It is to be hoped that if they succeed in conquering the Mormons, they will next turn their victorious arms against the officers of the State, destroy the papers, kick out the Governor, and organize a new government.

Manufactories in Florida.

We are gratified to learn from the Pensacola Gazette, that the manufacturing enterprise is making important advances in that section of country. There is a cotton factory established at Arcadia, and in successful operation. The building is ninety four by thirty feet, and employs forty operatives, young black women mostly married, and who are said to be comfortably lodged, well fed and clothed, kindly treated, and well pleased with the business.—Bagdad, in the wild woods, three and a half miles from Arcadia, is said to present the appearance of a manufacturing town. In various other places, arrangements are making for introducing manufacturing machinery, which, as in other places, gives an impulse to business and sensibly enhances the value of other property in the vicinity.

One of our exchanges speaks of a parent potatoe raised in Pittsfield, Ohio, and measuring two feet and three inches in length. They must have a long pot to boil it in.

A cotemporary has discoverd that the report of a marriage of a gentleman in Boston to a lady in New York, by Telegraph, is a sheer hoax! Bright, isn't he?

The price of wool has been so far reduced by the new tariff, that several merchants in this city have been shipping it in large quantitiss to England.

The Burlington (N. J.) Gazette states that a Mr. Bronson, in that county, is now producing abundance of second crop strawberries.

The Mexican word for a kiss, *tetenamaquiliztli*, contradicts the proverb that any thing is easier said than done.

'Look to your pockets, now days,' says the Albany Knickerbocker. What's the use?

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The Science of Astronomy.— Descriptive Astronomy.

The early ideas of mankind resspecting the objects described by astronomy, proceeded upon appearances which the uninstructed eye placed before them, and were far from being true. It was supposed that the earth was, as it seems, a fixed plane, or at the most, a fixed sphere, forming the heavens, revolving aronnd it once in twenty-four hours. Even philosophers deemed the earth the central and most important object in the system, and regarded the heavenly bodies, the sun, moon, planets and stars, as comparatively small objects, fixed ih the differnt crystal spheres, each of which observed its own laws of revolution, according to the apparent motions of the bodies fixed in it. It was not till after much study and investigation that even the most enlightened minds arrived at a knowledge of the truth; nor was it for some time longer that the idea of the earth not being in the centre of the system, or any thing but a small and subordinate part of it, was generally admitted. There is no room here to trace all the steps by which the truth was ascertained, or to argue the uninstructed mind out of its first and erroneous impressions. But it may be hoped that when the actual constitution of the heavens has been described, it will be possible to form some notion how the objects in their real character and real arrangements come to appear as they do to our eyes.

The field contemplated by the astronomer is no less than infinite space. So at least, he may well presume space to be, seeing that every fresh power which he adds to his telescope allows him to penetrate into remoter regions of it, and still there is no end. In this space, systems, consisting of suns and revolving planets, and other systems again, consisting of a numberless series of such lesser systems, are suspended by the influence of gravitation, operating from one to another, yet each body at such a distance from another, as though the mind of man can in some instance measure, it can in none conceive. We begin with what is usually called the Solar System —that is, the particular solar system to whioh our earth belongs.

THE SOLAR SYSTEM.

The solar system, so named from *sol*, [Latin] consists of the sun in the centre, twenty-nine planets, and an unknown number of bodies named comets. The word planet is from the Greek, *planao*, to wander, because the few such bodies known to the ancients were chiefly remarkable in their eyes on account of their constantly shifting their places with reference to the other luminaries of the sky.— Comets are so named from *coma*, [Latin.] a head of hair, because they seem to consist of one bright spot, and a long brush streaming from behind it.

PLANETS.

Eleven of the planets called *primary*, because they move directly around the sun, and *eighteen secondary*, because they move round primary planets. The secondary planets are also denominated satellites from *satellites*, [Latin,] originally signifying a lifeguardsman, but by a wider application, one who follows and serves another. Only four of the primary planets have sattellites.

The primary planets are Mercury, Venus, the Earth, Mars, Pallas, Juno, Jupiter, Saturn and Herschel, or Uranus. Most of the names are derived from the fabulous divinities of ancient Greece. The Earth has one satellite, the Moon; Uranus is supposed to have six.

The planets move round the sun on nearly one level or plane, corresponding with the centre of his body, and in one direction, from west to east. The secondary planets, in like manner, move in planes round the centres of their primaries, and in the same direction, from west to east. These are denominated revolutionary motions; and it is to be observed that they are double in the case of the satellites, which have at once a revolution round the primary, and a revolution, in company with the primary, round the sun. The path described by a planet, in its revolutions, is called its orbit.

Each planet, secondary as well as primary, and the sun, also, has a motion in its own body, like that of a bobbin upon a spindle. An imaginary line, forming, as it were, the spindle of the sun or planet, is denominated the axis, and the two extremities of the axis are called the poles. The axis of the sun and planets are nearly at a right angle with the plane of the revolutionary movements. The motion on the axis is called the rotary motion, from rota, the Latin for a wheel. The sun, the primary planets, and the satellites, with the doubtful exception of two attending on Uranus, move on their axis in the same direction as the revolutionary movements, from west to east.

The sun is a sphere or globe, of 882,000 miles in diameter, or 1,384,472 times the bulk of the earth, moving round its axis in 25 days. When viewed through a telescope, the surface appears intensely bright and luminous, as if giving out both heat and light to the surrounding planets. But on this surface there occasionally appear dark spots, generally surrounded with a border of less dark appearance; some of which spots have been calculated to be no less than 45,000 miles in breadth, or nearly as much as the circumference of the earth. The region of the sun's body on which the spots appear, is confined to a broad space engirdling his centre. They are sometimes observed to come into sight at his western limb, to pass across his body in the course of twelve or thirteen days, and then disappear. They are sometimes observed to contract with great rapidity, and disappear like something melted and absorbed into a burning fluid.— Upon the bright spots of the sun's body there are also sometimes observed streaks of unusual brightness, as if produced by the ridges of an agitated and luminous fluid. It has been surmised that the sun is a dark body, enveloped in an atmosphere calculated for giving out heat and light, and that the spots are produced by slight breaks or openings in that atmosphere, showing the dark mass within. Though so much larger than the earth, the matter of the sun is of only about a third of the density or compactness of that of our planet, or little more than the density of water.

The sun is surrounded to a distance by a faint light, or luminous matter of extreme thinness, shaped like a lens or magnifying-glass, the body of the sun being in the centre, and the luminous matter extending in the plane of the planetary revolutions, till it terminates in a point. At particular seasons, and in favorable states of the atmosphere, it may be observed, before sunrise or after sunset, in the form of a cone pointing obliquely above the place where the sun is either about to appear, or which he has just left. It is termed the Zodiacal Light.

THE FIRE SHIELD.

The above engraving represents a recent invention, the FIRE SHIELD, having for its object the protection of firemen from the excessive heat of the flames, while engaged in their gallant calling. The head, being undefended by clothing, is more sensitive to heat than any other part of the body, often compelling firemen to stand aloof, when, could their faces have a protection, leaving free use of the eyes, the flames might be approached much nearer; resulting, perhaps, in the rescue of valuable property. For this purpose a stiff leather mask has been constructed, with pieces of clear mica for eye-glasses, as in the above drawing, with a small tube near the mouth for inhalation, the whole forming an ingenious and certain defence.

HUMOROUS.

The Indian and the Wolf.

The Cincinnati Evening Welcome, in opposing the license law, relates the following anecdote: We remember reading an anecdote some years since, of an old Indian, who in his hunting excursions, came across a she wolf; prowling along the edge of a dismal swamp. Although within rifle shot, he reserved his fire, and chose rather to track her den, where he captured three cubs. The government was then paying a bounty for wolf-scalps, and accordingly scalping the cubs, he presented himself before the proper authorities, and pocketed the bounty money. For many years he followed up this system, selling the scalps of the cubs, when presenting himself one morning at the office of the supervisors, the astonished clerk asked—

'Is it possible there are so many wolves in your country?'

'Yes,' was the laconic reply.

'In the same swamp?

'Yes.'

'Do you ever see the old she wolf?'

'Yes.'

'Well, it is her that does the mischief—why don't you shoot her.'

'*Because me no get any more cubs, then!*'

Just so it is with our City Council. Year after year they saddle upon us, under the license law, a host of destructive agents, in the shape of groggeries, for the purpose of raising revenue to pay off city officers, &c.

Knott Martin.

This eccentric person being called as a witness in a Court of Common Pleas, was addressed by the court with the question, 'What is your name, sir?'

Answer. My name is Knott Martin.

Court. Well, then, what is it?

Ans. It is Knott Martin, your honor.

Court. What do you mean, sir? I wish to know what your name *is*,—not what it is not.

Ans. Then I will spell my name: k-n-o-double t, Knott: m-a-r—

Court. O, yes, yes, Mr. Martin, I understand you; though I confess it one of the most knotty cases I have seen for some time.

'How this world is inclined to slander,' said a maiden lady to an English nobleman, can you believe it, sir, some of my malicious acquaintances reported that I had twins.' 'Madam, I make it a rule to believe only half I hear!' replied his lordship.

The Mexicans, it is said, catch a runaway soldier hy throwing a lasso. Very similar, says the Lynn News, to the manner in which old bachelors are taken. They are usually caught with a *lass, oh!*

'Am I not a little *pale?*' inquired a lady who was rather short and corpulent, of a crusty old bachelor. 'You look more like a big *tub!*' was the blunt rejoiuder.

'Please, have you any cold victuals?' said a little ragged girl to the cook of a boarding house.

'The Lord bless you, no, we eat all our cold victuals hot.'

A gentleman asked his wife—'Have you read Prentice's lines to an absent wife by Dr. Berthune?' She replied. 'No, my dear, but I should like very much to read some of your lines to an absent wife.'

Pritchard mentions the curious case of a lunatic, who would never eat his food unless he had previously stolen it. Meitz speaks of a criminal who, at the moment he was about to be executed stole his confessor's snuff box.

An Important Discovery.

A French chemist, M. Jobbard, claims to have discovered a method of producing gas for illuminating purposes, from water alone. He charges the hydrogen from aqueous vapor strongly with carbonaceous vapor from oil or gas, tar, or any other oil, and produces a brilliant, white light.

An apple tree on the farm of Mr. J. Lewis in Wayne township, has produced apples this season, which measured *fifteen inches* in circumference.

A young man has recently died of hyrophobia in Pittsburg, in consequence of the bite of a mad dog nine months previous.

Oddities and singularities of behavior may attend genius; when they do they are its misfortunes and its blemishes. The man of true genius will be ashamed of them.

The Daughters of Temperance in Cincinnati have held a public meeting for the purpose of taking preparatory measures to establish a house of employment for indigent females.

Those who receive this paper are respectfully requested to show it to their friends, and thus assist its circulation.

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The Sun.

I was discoursing, at the last evening's lecture, upon the circumstances and physical state of the surface of the Sun. There are some very striking facts connected with this subject, which have been but recently unfolded, and of which many are the discoveries of living philosophers. It was the opinion of the late Sir WILLIAM HERSCHELL, (and his supposition had many advocates,) that the Sun is an opaque globe, entirely covered by a luminous fluid of some kind; but whether it be an ocean of liquid fire like molten iron: or an ocean of gaseous fluid, as of flame; or yet again, an incandescent solid, like iron glowing with white heat, remained wholly without explanation until within a very recent period. But the question has now been reduced to a positive absolute demonstration, and the process by which it was done, and the circumstances attending it, afford a beautiful example of the mode in which the different sciences minister to each other.

We see in this singularly elegant solution of an apparently insoluble problem, three sister sciences aiding and cherishing each other. In Optics, a beam of light is proved to be susceptible of a peculiar modification called *polarization*. All light is proved to be in a polarized or unpolarized state; and although it may not be easy fully to explain what is meant by the polarization of light, still by the aid of a fanciful illustration I can give you a notion of it sufficiently precise for our present purpose. Suppose this wand, which I hold in my hand, to represent a ray of light; it has four sides; suppose the two opposite sides, which are painted blue, to possess a certain property—and the other two opposite, which are colored red, to possess a property different from the first. This wand, then, exactly represents a a polarized ray of light. If all sides had the same properties, then it would represent an unpolarized ray. Now light may undergo a certain change which shall polarize it—imparting to two of its sides, opposite to each other, a certain property which the other two do not possess. The question arises, what are these properties?

They are various; one however, is so simple and so nearly connected with the demonstra- to which I call your attention, that I shall mention it. If a ray of light fall upon a reflecting surface with either of those two sides, which are represented by the red sides of the wand, it will be reflected at an equal angle to that by which it approached the surface. But if it strikes the surface upon the opposite side —the blue—it will not be reflected at all. So that two of its faces are capable of reflection, while the other two are not. This is one of the qualities by which polarized light is characterized. In a ray which is not polarised, reflection takes place under all circumstances; but with polarized light, only under certain conditions, Thus we see that light may exist in two distinct states; the one unpolarized, or in its ordinary state—and the other polarized, or in its extraordinary state. Now this is the truth which has been contributed to this demonstration by the discoveries of modern optics. Let us turn to another branch of physics. The science of heat has received more attention within a few years past than any other branch of physics. Fourier, a French philosopher, has done much in this department of knowledge. One of the conclusions he establishes is this: There are three states in which material bodies exist, namely: the solid, liquid, and gaseous. Fourier proved that when a solid body becomes incandescent, the light which it admits is polarized; that the light emitted by an incandescent liquid, as molten iron, is likewise polarized; and that the light of incandescent gases, as flame, is unpolarized. These facts are true, whatever may be the nature of the materials. Here is a distinction established by this great natural philosopher between light emitted by incadescent solids and liquids and that emitted gasses. This is the contribution from the science of heat

Now M. Arago has, with most beautiful sagacity, availed himself of these two facts, contributed by these sciences of light and heat, to determine the nature of the sun's atmosphere. This may easily be done; for since it established that the light from incandescent solids and liquids is polarized, all that need be done to determine this point is to try by experiment, whether its light be polarized or not. Arago, by applying the usual tests, found that it is not polarized: the conclusion as inevitable as it is important, is, that the surface of the Sun is covered, not by a solid or a liquid, but by an atmosphere of flame. Here is one of the most beautiful inferences drawn from the whole range of physics; and is established by the aid of science, with all the certitude of a mathematical demonstration.

Arago proved, therefore, that the Sun's atmosphere is an ocean of flame. It has long been supposed that the Sun was surrounded by an atmosphere of light, and this opinion was mainly grounded on the assertion of an eminent French observer of the Sun, that its borders were less lumtnous than the centre; and the inference from this was justified by saying that a thicker portion of the Sun's atmosphere came between the eye and the centre than at the edges. This however, has been proved by M. Arago not to be the case. There is a certain kind of crystal which presents a double image; this he employed in his experiment; and by casting the edge of one image of the Sun upon the centre of the other, he showed clearly that this assertion of the French astronomer was unfounded. —[Dr. Lardner.

Mr. Rogers' Personation.

Dr. Thomas Goodwin told me, having heard much of Mr. Rogers, of Dedham, he took a journey to hear him preach on his lecture day. Mr. Rodgers was, at the time he heard him, on the subject of the Scriptures. And in that sermon he falls into an expostulaton with the people about their neglect of the Bible. He personates God to the people, and tells them, "Well, I have trusted you so long with my Bible; you have slighted it; it lies in such houses, all covered with dust and cobwebs; you care not to look to it. Do you use my Bible thus? Well, you shall have my Bible no longer." And he takes up the Bible from his cushion, and seemed as if he were going away with it, and carrying it from them; but immediately turns again, and personates the people to God, falls down on his knees, cries, and pleads most earnestly, "Lord, whatever thou doest to us, take not thy Bible from us; kill our children, burn our houses, destroy our goods, only spare us thy Bible — only take not away thy Bible." And then he personates God again to the people: "Say you so? Well I will try you awhile longer; and here is my Bible for you, I will see how you will use it, whether you love it more, whether you will value it more, practice it more, and live more according to it. But by these actions, and this discourse (as the Doctor told me) he put all the congregation into so strange a posture, as he never saw any congregation in his life—the people, generally as it were, deluged with their own tears, and he told me, that he, himself, when he got out, and was to take horse again to be gone, was fain to hang upon the neck of his horse weeping, before he had power to mount; so strange an impression was there upon him, and generally upon the people, upon having been thus expostulated for the neglect of the Bible.—[Rev. John Howe.

Aged Negroes.

A colored woman, named Dolly, belonging to the estate of Richard Wilder, of Camden county, N. C., died on the 24th ult., at the age of 120 years! She survived her husband some three or four years, who was 119 at the time of his death! They lived together as man and wife nearly ninety years.

Pretty Plain.

'Martha, what letter in the alphabet do you like best.'

'Well, I don't like to say, James.'

'Pooh, nonsense! tell me right out; Martha—which do you like the best?'

'Well," said Martha, dropping her eyes, 'I like *U* the best!'

Coincidence of Weight and Measure.

The editor of the Germantown (Ohio) Gazette, has surveyed another peach, which measured 10-3-4 inches in circumference, and weighed 10 3-4 ounces. Probably the largest of the season.

'I see you're on the watch,' as the thief said to the guard-chain.

ADVERTISEMENTS.

☞ THIS paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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MARTIN H. MANSFIELD,
oct. 3 3t* Mifflintown, Juniata Co. Pa.

GENERAL PATENT AGENCY.—The subscriber has established an agency at his warehouse, 12 Platt street, New York, for the protection and general advancement of the rights and interests of Inventors and Patentees.

The objects of this agency are more particulary to aid and assist Inventor sand Patentees in effecting sales of their inventions and of goods and wares made therewith—and also for the sale and transfer of Patent Rights.

Arrangements have been made with a lawyer familiar with the Patent Laws, who will attend to the legal branch of the business upon reasonable terms. Satisfactory references will be given. Applications may be made to the undersigned personally, or by letter, post paid. SAMUEL C. HILLS,
45-2dv6* General Patent Agent.

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Engraving on Wood

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sept 25. tf 189 Broadway, N. Y.

Density of the Earth.

Is the earth solid or hollow,—and if solid, how dense is it? Would it be equivalent to so much water, or would it exceed it, and how much would it exceed it? It may seem very difficult to answer these questions, and yet they have been answered most satisfactorily It is now abundantly proved, not only that the earth is solid, but that the interior parts are more and more compact the nearer we approach to the centre, as we should naturally suppose. We are able to estimate the influence which a mountain exerts upon a plumb-line by observing hom much it is drawn out of the direction of an exact perpendicular; and then, by comparing the size of the mountain with the size of the earth, knowing at the same time of what materials the mountain is composed, we are able to say how much the matter of the whole earth exceeds in density that of the mountain. It is thus ascertained that the matter composing the earth is about five times as dense as water, or, in other words, would weigh, under the same circumstances, five times as much as the same bulk of water. Now we know that the matter near the surface, is, for the most part, either water or earthy and stony substances, only two or three times as heavy as water. The density of the interior parts, therefore, must greatly exceed that at the surface, in order that the average may amount to five times the density of water, as is ascertained by actual observation.

It may be thought that the above method of determining the quantity of matter in a mountain, is liable to great uncertainty. It should be known that we do not rely upon a single experiment, or even upon one single method, for so important a result. A balance has been contrived, depending upon the twisting and untwisting of an extremely fine wire, suspended perpendicularly, by which the mutual tendency (or relative weight) of two balls of lead, has been accurately estimated and compared with the force exerted by the great mass of the earth; and these delicate experiments have afforded a striking confirmation of the result above stated.

Lead Solder.

There are a variety of purposes for which vessels, made of pure lead, are superior to those made of any other material: but there appears to be few if any workmen in this country who understand the art of soldering the sheets or plates, with pure lead for solder. A patent was some time since taken out in England, for a peculiar mode of soldering with lead. This is effected by means of a jet of flame similar to that produced with a blow-pipe. It is said to be quite manageable, and highly useful in preparing vessels for vitriol makers, and other operators in chemistry, galvanism, &c. If any of our readers in this city understand the art, we should be happy to make their acquaintance.

Sage Advice.

We give below the following aphorisms as we found them, although we don't believe a word of them:

'Let the sun's first rays shine upon your head in the morning, and you will not lack a good hat to defend you from its scorching rays at noon.'

'Earn your breakfast before you eat it, and the Sheriff will not deprive you of your supper.'

'Be temperate, and your physician shall look in vain for your name on his day-book.'

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Necessity the Mother of Invention.

The following anecdote was related to us a few days since by a friend of ours, of Day & Martin, whose blacking is so extensively used in this country. They were once poor servant boys in the city of London, but by chance one of them obtained a recipe for making blacking, and they resolved to open shop. Accordingly a small cellar was obtained and notice given, through the newspapers, to the world in general, and city of London in particular, that "Day & Martin had opened shop," and were the manufacturers of blacking. But there were other establishments of long standing, and that had the capital too, and they found that it would be impossible to live by their new business, unless their joint ingenuity couid devise some means to "raise the steam." They at last hit upon the following plan: Several splendid suits of livery were purchased, intended for the servants of noblemen of different ranks. They being dressed in their new suits, would go to different shops where blacking was usually sold, being always careful not to apply to any of their own customers, and enquire for Day & Martin's blacking, and usually the shopkeeper having none of Day & Martin's, would insist upon sending some other kind, but it was of no use. Their Lord or Count must have Day & Martin's, as that was superior to any other. In a short time, by this means, they raised public demand for *the article*, and no other blacking was more used among the nobility than Day & Martin's. They are now among the most wealthy merchants of London. One of Mr. Day's daughters having married but a short time since, her father gave her as a marriage portion £100,000. We find that most of the wealthy men of this country commenced in life with no other capital than a good character, and that they accumulated their wealth by prudence, perseverance and close attention to business.

Chinese Ingenuity.

Many of the Chinese dwell in floating houses, and some of them keep large flocks of ducks, which swim about the harbors in the day time, but are called home by a whistle at night. An English officer was surprised to see how readily and rapidly the ducks obeyed the call, and on making enquiry on the subject, was informed that the owner always beat the duck that arrived latest.

Perfectly Consistent.

We observe that in most of the plates in which the modern extremes of fashion are represented in the fashionable magazines, the figures of the fashionables, both ladies and gentlemen, are represented with *very flat heads!*

Manufacture of Paper.

From statistical documents presented before Congress, it appears that the capital employed in the manufacture of paper in the United States is $18,000,000. The number of mills, 700: the annual product $17,000,000, and the number of operatives employed, 100,000.

About Right.

Petitions are in circulation in Boston, praying the Legislature to exempt those who do not make, vend, use, or derive a profit from the sale of intoxicating drinks, from that portion of the taxes which is applied to repair the mischiefs of such drinks.

Cement for Stoves.

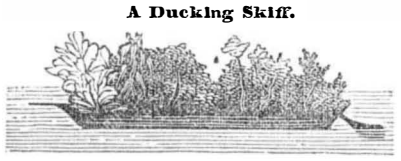
When a crack is discovered in a stove, through which the fire or smoke penetrates, the aperture may be readily closed in a moment, with a composition consisting of wood ashes and common salt, made into paste with a little water, plastered over the crack. The good effect is equally certain, whether the stove be cold or hot.

Mr. Vanderlyn is on his way to the United States with the painting intended for the Rotunda of the Capitol, and on which he has been occupied for several years.

Manufacture of Leather.

A worthy citizen has recently obtained letters patent for a new and improved method of manufacturing the various kinds of leather. It consists of extracting the tanning more thoroughly by means of alkalies and a raised temperature, and fermenting the liquor thus obtained. In the present ordinary method, Mr. G. says liquid crystallizes in the pores and between the fibres of the leather, and thus prevents cutting edges in the wear. But by fermenting the liquid before the immersion of the hides and skins, the union betwen the fibres and the tanning substance becomes perfected,—and the leather is rendered more firm, pliable and durable. Shoemakers judge of the quality of the leather by cutting it.—If it dulls and takes hold of the edge of the knife, there is evidence of much crystallization, which deteriorates from the quality. The time required in giving the highest state of maturity to the leather is some three or four days. The importance of this improvement is not easily figured or measured. It stands our manufacturers in hand to avail themselves of every progressive movement in the perfection of this expensive and largely consumed article. Mr. G. has spent several years in experimenting on his invention. In his own view he has completely solved the question—has produced an article much superior to that now in use, and one that will not only command a better price, but superscede that produced by the old process. Having spent all his living in bringthe new method to perfection, he now has no other alternative than to appeal to those who have means to enable him to bring the article into general use. Capitalists should not for their country's sake, let the inventive genius of their fellow citizens languish for the want of some substantial encouragement.—They should ever be willing to risk a moderate amount where a probability of advancing the Arts, and promoting the prosperity of our productive interests. Livingston and others enjoyed by the most elevated reward, and rendered themselves memorable, by affording aid to persevering and indomitable genius. Mr. G., the inventor, is a German by birth, and of much intelligence and moral worth. Specimens of the leather may be seen at the Mechanics' and Farmers' Agency, No. 34 Ann street.

A Ducking Skiff.



A sportsman — down east of course — has constructed a skiff expressly for the pursuit of ducks and other acquatic game. The skiff is covered with bushes and shrubbery; the sportsman lies flat on the bottom, with his gun resting on the bow. Near the stern is a vertical shaft, which passes through the bottom, which is furnished with a stuffing box, to prevent leakage. This shaft operates as a *rudder post*, and is supported at the top by a thwart or cross-bar, and has a yoke attached above the stuffing box, by means of which the shaft and its appendage below, are operated by the feet or toes of the sportsman as he lies in the boat. To the bottom of the shaft, below the boat, is attached a horizontal rod extending fore and aft: and through each end of this rod, a vertical pivot passes, extending about four inches above and below the rod. On each end of each pin, is mounted a piece of thin board or float a foot long, and four inches wide, sharp at each end. The pivot extends through each, edgewise, near the forward end of each; and to the aft end of each float, a small cord is attached in such a manner as to prevent the float from changing its position on the pivot more than twenty-five degrees. In consequence of this check, when the rod is moved to the right or left by means of the yoke, the floats operate obligingly upon the water, and propel the boat forward, though perfectly silent. The sportsman can thus approach either ducks or geese in the water, without giving any alarm.

The business of printing calicoes was first introduced into this country in the year 1825. In the year 1842 there was a capital of seven millions five hundred thousand dollars investde in the business.

Steel.

Steel is composed of iron and carbon, in which the proportion of the latter is from five to one per cent., and even less in some kinds. Steel may be distinguished from iron by its fine grain; its susceptibility of hardening by immersion, when hot, into water; and with certainty by the action of dilute nutric acid, which leaves a black spot on steel, and on iron a spot which is lighter colored in proportion as the iron contains less carbon.

There are many varieties of steel, the principal of which are:

Natural Steel, which is obtained by reducing the rich and pure kinds of iron ore with charcoal, and refining the cast iron, so as to deprive it of a sufficient portion of carbon to bring into a malleable state. It is made principally in Germany, and is used for making files and other tools.

The Indian steel called Wootz, is said to be a natural steel, containing a small portion of other metals.

Blistered Steel, or steel of cementation, is prepared by the direct combination of iron and carbon. For this purpose the iron in bars is put in layers alternately with powdered charcoal, in a close furnace, and exposed for seven or eight days to a heat of about 70 degrees Wedgewood, and then suffered to cool for as many days more. The bars, on being taken out, are covered with blisters, have acquired a brittle quality, and exhibit in the fracture a uniform chrystaline appearance. The degree of carbonization is varied according to the purposes for which the steel is intended, and the best qualities of iron (Russian and Swedish) are used for the finest kinds of steel.

Tilted Steel is made from blistered steel, moderately heated, and subjected to the action of the tilt hammer, by which means its tenacity and density are increased, and it is thus adapted to use.

Shear Steel is made from blistered or natural steel, refined by piling thin bars into faggots, which are brought to a welding heat in a reverberatory furnace, and hammered or rolled again into bars. This operation is repeated several times to produce the finest kinds of shear-steel, which are distinguished by the names of 'half shear,' 'single shear,' and double shear,' or steel of '1 mark,' '2 marks,' '3 marks,' &c. according to the number of times it has been piled.

Cast Steel is made by breaking blistered steel into small pieces, and melting it in close crucibles, from which it is poured into iron moulds; the *ingot* is then reduced to a bar by hammering or rolling, as described under the head of malleable iron; these operations being performed with great care. Cast steel is the finest kind of steel, and best adapted for most purposes. It is known by a very fine, even and close grain, and a silvery homogeneous fracture; it is very brittle, and acquires extreme hardness, but is difficult to weld without the use of a flux. The other kinds of steel have a similar appearance to cast steel, but the grain is coarser and less homogeneous; they are softer and less brittle, and weld more readily. A softer or more lamellar appearance in the fracture indicates an imperfect steel. A material of great roughness and elasticity, as well as hardness, is made by forging together steel and iron, forming the celebrated damask steel which is used for sword blades, springs, &c.; the damask appearance is produced by the action of a diluted acid, which gives a black tint to the steel parts, while the iron remains white. Various fancy steels, or alloys of steel with silver, platina rhodium, aluminium, have been made with a view of imitating the Damascus steel, wootz, &c., and improve the fabrication of some of the finer kinds of surgical and other instruments.

Cold water, with mercury, and acids, give the greatest hardness; oils and fatty suhstances, sand, wet iron, scales or cinders, &c,, give an inferior degree of hardness, but prevent the cracks which are caused by too rapid cooling. The lower the heat at which the steel becomes hard the better.

Tempering.—Steel in its hardest state being too brittle for most purposes, the requisite strength and elasticity are obtained by tempering, or "setting down the temper," as the workmen term it, which is performed by heating the hardened steel to a certain degree, and letting it cool gradually. The requisite heat is usually ascertained by the color which the surface of the steel assumes from the film of oxide thus formed.

English files are used exclusively at the arsenals and armories.

Files should be made of the best cast steel. The teeth are generally cut at an angle of 60 degrees with the centre line; at a smaller angle, they do not cut.

In choosing files they should be examined to see that they are straight, that they are free from cracks and flaws, and that they are cut regularly. The teeth should not be turned or broken by filing on iron or tempered steel. One out of each dozen may be tried on a piece of tempered steel, such as the tang of a file screwed in a vice; the file should take in its whole length, both on the flat and edge, and should not cut in drawing back; it should not make furrows or show a tendency to deviate from the direction given to it by the hand.—The quality of the steel may be determined by breaking some of the files, and working the steel in the forge.

Case Hardening is the conversion of the surface of wrought iron into steel, for the purpose of adapting it to receive a polish, or to bear friction, &c.; this is effected by heating the iron to a cherry red, in a close vessel, in contact with carbonaceous materials, and then plunging it into cold water. Bones, leather, hoofs, and horns of animals, are generally used for this purpose, after having been burnt or roasted, so that they can be pulverized. Soot is also frequently used.

Paying Dear for a Whistle.

Brushman, the late Postmaster at Little York, Me., was sentenced to ten years imprisonment for stealing only one dollar from a letter.

THE NEW YORK

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